

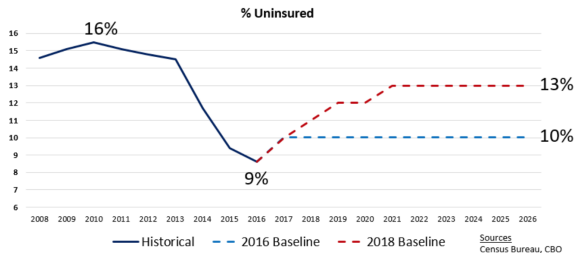
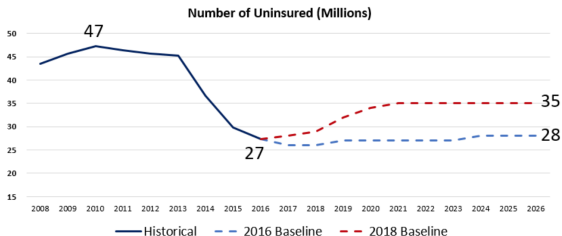
Lecture 18:
Policy Lab
Impacts of health insurance expansion II

PPHA 34600
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From last time: health insurance policy lab

U.S. Health Insurance Coverage (2008-2026)



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 - More (less) healthy
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→ There are many forms of selection bias!

From last time: Does health insurance expansion improve health?

Currie and Gruber/Hanratty (2016) are seminal studies of healthcare:

- Estimate impacts in 1980s-1990s USA + 1960s-1970s Canada
- Identification: DD + IV
- IV: Simulated instrument (eligibility rules)
- **Finding:** Healthcare expansion causes large increases in health

Alternative approaches to handling selection bias

We may find the DD estimates unsatisfying...

Today: an additional estimation approach:

- 1 Finkelstein et al (2012): **RCT**
- 2 Baicker et al (2013); Baicker et al (2014) add outcome variables

Second main paper: Finkelstein et al (2012)

A hugely prominent econ paper to randomize health insurance:

Research question: What is the impact of health insurance expansion on health?

- What are the impacts of Medicaid on healthcare utilization?
- How does insurance impact expenditures?
- And how does it impact health?
- What are the costs and benefits of Medicaid expansion?

Finkelstein et al (2012): Context

Finkelstein et al study Medicaid expansion in Oregon:

- Oregon Health Plan: OHP Plus and OHP Standard
- OHP Plus: Medicaid (low-income kids, TANF, pregnant women)
- OHP Standard: low-income families not eligible for OHP Plus (low assets; BPL)
- ... but households remained at low levels (only 32% electrified in 2014)
- OHP Standard: comprehensive benefits; no cost-sharing
- Premiums \$0-\$20 per month
- 2002: 110,000 people enrolled in Standard; \approx 300,000 Plus

Finkelstein et al (2012): Data

TABLE I
(CONTINUED)

Variable	Control mean	Variable	C
<i>Education</i>		<i>Income (% federal poverty line)</i>	
% Less than high school	0.177	<50%	0
% High school diploma or GED	0.491	50–75%	0
% Vocational training or 2-year degree	0.220	75–100%	0
% 4-year college degree or more	0.112	100–150%	0
		Above 150%	0
<i>Employment</i>		<i>Insurance coverage</i>	
% don't currently work	0.551	Any insurance?	0
% work <20 hours per week	0.090	OHP/Medicaid	0
% work 20–29 hours per week	0.099	Private insurance	0
% work 30+ hrs per week	0.259	Other	0
<i>Average household income (2008) \$</i>	13,035	# of months of last six with insurance	1

Notes. All statistics are reported for control individuals only. Panel A reports the control means for prerandomization demographics taken from the lottery list and February 2006 for the whole sample ($N=45,088$ for controls). Age refers to age at the end of the study period. "English as preferred language" indicates whether the respondent did not check a box requesting materials in a language other than English. Panel B reports control means of lottery list prerandomization demographics and survey respondents ($N=11,933$ for controls), weighted using survey weights. "Household income" is gross household income (in \$) for 2008 (before taxes and deductions) minus any cash assistance or unemployment assistance received; it is reported in bins and we assign individuals the income at the midpoint of their bin (see Online Appendix for details). For the insurance questions, we code as "yes" if the respondent checked that insurance type box; because the survey allows one to check multiple boxes, the subgroups (OHP/Medicaid, private, and other) won't necessarily add up to "any." Private insurance includes employer and privately paid insurance; "Other" includes "Medicare and other." We treat responses for insurance as missing if the responder checked "I don't know" or left all checkboxes blank. We construct income as a percentage of the federal poverty line based on self-reported income and self-reported (total) number of household members. See Online Appendix 3 for more details.

Finkelstein et al (2012): Data

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Finkelstein et al (2012): Study design

RCT disguised as a natural experiment:

- January 2008: OHP Standard opened to new enrollment
- 10,000 available slots, but oversubscribed
- Lottery to choose who gets in
- 89,824 on the list, 35,169 accepted

Finkelstein et al (2012): Intent to treat

Using the lottery as random assignment:

Estimate:

$$Y_{ih} = \alpha + \tau R_{ih} + \beta X_{ih} + \gamma V_{ih} + \varepsilon_{ih}$$

where:

Y_{ih} is an outcome for person i in household h

R_{ih} is an indicator for whether household h was chosen in the lottery

X_{ih} are controls for selection

V_{ih} are controls for precision

ε_{ih} is an error term

Finkelstein et al (2012): Balance

TABLE II
TREATMENT: CONTROL BALANCE

	Control mean (std. dev.) for full sample	Difference between treatment and control		
		Full sample (2)	Credit report subsample (3)	Survey respondents subsample (4)
	(1)			
Panel A: Match/response rates				
Matched in September 2009 credit data	0.663 (0.473)		-0.0043 (0.0037) [0.347]	
Responded to survey	0.506 (0.500)			-0.016 (0.0066) [0.014]
Response time (in days)	53.0 (57.8)			1.638 (1.088) [0.132]
Panel B: Prerandomization characteristics				
Lottery list variables				
<i>F</i> -statistic		1.286	0.553	0.574
[<i>p</i> -value]		[0.239]	[0.836]	[0.820]
Pre-randomization outcomes				
<i>F</i> -statistic		0.543	0.921	1.266
[<i>p</i> -value]		[0.844]	[0.518]	[0.281]
Both of the above				
<i>F</i> -statistic		0.915	0.793	0.782
[<i>p</i> -value]		[0.56]	[0.726]	[0.680]
<i>N</i>		74,922	49,990	23,741

Finkelstein et al (2012): LATE

The ITT gets the impact of the offer; to get impacts of coverage:

$$Y_{ih} = \alpha + \theta D_{ih} + X_{ih} + V_{ih} + \varepsilon_{ih}$$

where:

Y_{ih} is an outcome for person i in household h

D_{ih} is an indicator for whether household h got insured

X_{ih} are controls for selection

V_{ih} are controls for precision

ε_{ih} is an error term

Finkelstein et al (2012): First stage

TABLE III
FIRST-STAGE ESTIMATES

	Full sample		Credit report subsample		Survey respondents	
	Control mean (1)	Estimated FS (2)	Control mean (3)	Estimated FS (4)	Control mean (5)	Estimated FS (6)
(1) Ever on Medicaid	0.141	0.256 (0.0035)	0.135	0.255 (0.0042)	0.135	0.290 (0.0066)
(2) Ever on OHP Standard	0.027	0.264 (0.0029)	0.028	0.264 (0.0036)	0.026	0.302 (0.0055)
(3) # of months on Medicaid	1.408	3.355 (0.045)	1.352	3.366 (0.055)	1.509	3.943 (0.090)
(4) On Medicaid, end of study period	0.106	0.148 (0.0031)	0.101	0.151 (0.0038)	0.105	0.189 (0.0061)
(5) Currently have any insurance (self-report)					0.325	0.179 (0.0077)
(6) Currently have private insurance (self-report)					0.128	-0.0076 (0.0053)
(7) Currently on Medicaid (self-report)					0.117	0.197 (0.0063)
(8) Currently on Medicaid					0.105	0.191 (0.0060)
(9) Ever on TANF	0.031	0.0011 (0.0013)	0.028	0.0021 (0.0016)	0.023	0.0019 (0.0025)
(10) TANF benefits (\$)	124	-1.659 (5.813)	111	1.543 (6.571)	100	-4.991 (10.884)
(11) Ever on food stamps	0.606	0.017 (0.0029)	0.594	0.018 (0.0035)	0.622	0.023 (0.0054)
(12) Food stamp benefits (\$)	1776	613 (15.0)	1787	60.0 (18.8)	2202	122.4 (33.4)
<i>N</i>		74,922		49,960		23,741

Finkelstein et al (2012): Utilization

HOSPITAL UTILIZATION				
	Control mean (1)	ITT (2)	LATE (3)	p-values (4)
Panel A: Extensive margin				
All hospital admissions	0.067 (0.250)	0.0054 (0.0019)	0.021 (0.0074)	[0.004]
Admissions through ER	0.048 (0.214)	0.0018 (0.0016)	0.0070 (0.0062)	[0.265]
Admissions not through ER	0.029 (0.167)	0.0041 (0.0013)	0.016 (0.0051)	[0.002]
Panel B: All hospital admissions				
Days	0.498 (3.795)	0.026 (0.027)	0.101 (0.104)	[0.329] [0.328]
List charges	2,613 (19,942)	258 (146)	1,009 (569)	[0.077] [0.106]
Procedures	0.155 (1.08)	0.018 (0.0083)	0.070 (0.032)	[0.031] [0.059]
Standardized treatment effect		0.012 (0.0067)	0.047 (0.026)	[0.073]
Panel C: Admissions through ER				
Days	0.299 (2.326)	0.023 (0.017)	0.089 (0.067)	[0.183] [0.187]
List charges	1,502 (12,749)	163 (96)	636 (376)	[0.091] [0.171]
Procedures	0.081 (0.694)	0.0080 (0.0054)	0.031 (0.021)	[0.135] [0.187]
Standardized treatment effect		0.011 (0.0069)	0.044 (0.027)	[0.100]
Panel D: Admissions not through ER				
Days	0.199 (2.38)	0.0033 (0.017)	0.013 (0.065)	[0.841] [0.842]
List charges	1,110 (12,422)	98 (91)	384 (356)	[0.281] [0.383]
Procedures	0.075 (0.708)	0.010 (0.0056)	0.038 (0.022)	[0.080] [0.162]
Standardized treatment effect		0.0077 (0.0068)	0.030 (0.026)	[0.254]

Finkelstein et al (2012): Utilization

TABLE V
HEALTH CARE UTILIZATION (SURVEY DATA)

	Extensive margin (any)			
	Control mean (1)	ITT (2)	LATE (3)	<i>p</i> -values (4)
Prescription drugs currently	0.637 (0.481)	0.025 (0.0083)	0.088 (0.029)	[0.002] [0.005]
Outpatient visits last six months	0.574 (0.494)	0.062 (0.0074)	0.212 (0.025)	[<0.0001] [<0.0001]
ER visits last six months	0.261 (0.439)	0.0065 (0.0067)	0.022 (0.023)	[0.335] [0.547]
Inpatient hospital admissions last six months	0.072 (0.259)	0.0022 (0.0040)	0.0077 (0.014)	[0.572] [0.570]
Standardized treatment effect		0.050 (0.011)	0.173 (0.036)	[<0.0001]
Annual spending ^a				

Finkelstein et al (2012): Utilization

COMPLIANCE WITH RECOMMENDED PREVENTIVE CARE (SURVEY DATA)

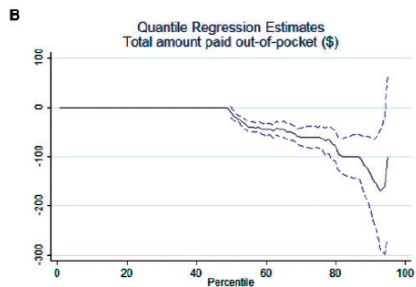
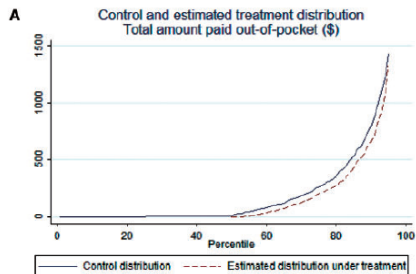
	Control mean (1)	ITT (2)	LATE (3)	p-values (4)
Blood cholesterol checked (ever)	0.625 (0.484)	0.033 (0.0074)	0.114 (0.026)	<0.0001 <0.0001
Blood tested for high blood sugar/diabetes (ever)	0.604 (0.489)	0.026 (0.0074)	0.090 (0.026)	0.0004 <0.0001
Mammogram within last 12 months (women ≥ 40)	0.298 (0.457)	0.055 (0.012)	0.187 (0.04)	<0.0001 <0.0001
Pap test within last 12 months (women)	0.406 (0.491)	0.051 (0.01)	0.183 (0.034)	<0.0001 <0.0001
Standardized treatment effect		0.087 (0.012)	0.300 (0.041)	<0.0001

Finkelstein et al (2012): Financial strain

FINANCIAL STRAIN (SURVEY DATA)

	Control mean (1)	ITT (2)	LATE (3)	<i>p</i> -values (4)
Any out of pocket medical expenses, last six months	0.555 (0.497)	-0.058 (0.0077)	-0.200 (0.026)	[<0.0001] [<0.0001]
Owe money for medical expenses currently	0.597 (0.491)	-0.052 (0.0076)	-0.180 (0.026)	[<0.0001] [<0.0001]
Borrowed money or skipped other bills to pay medical bills, last six months	0.364 (0.481)	-0.045 (0.0073)	-0.154 (0.025)	[<0.0001] [<0.0001]
Refused treatment because of med- ical debt, last six months	0.081 (0.273)	-0.011 (0.0041)	-0.036 (0.014)	[0.01] [0.01]
Standardized treatment effect		-0.089 (0.010)	-0.305 (0.035)	[<0.0001]

Finkelstein et al (2012): Payment



Finkelstein et al (2012): Health

TABLE IX
HEALTH

	Control mean (1)	ITT (2)	LATE (3)	p-values (4)
Panel A: Administrative data				
Alive	0.992 (0.092)	0.00032 (0.00068)	0.0013 (0.0027)	[0.638]
Panel B: Survey data				
Self-reported health good/very good/excellent (not fair or poor)	0.548 (0.498)	0.039 (0.0076)	0.133 (0.026)	[<0.0001] [<0.0001]
Self-reported health not poor (fair, good, very good, or excellent)	0.86 (0.347)	0.029 (0.0051)	0.099 (0.018)	[<0.0001] [<0.0001]
Health about the same or gotten better over last six months	0.714 (0.452)	0.033 (0.0067)	0.113 (0.023)	[<0.0001] [<0.0001]
# of days physical health good, past 30 days*	21.862 (10.384)	0.381 (0.162)	1.317 (0.563)	[0.019] [0.018]
# days poor physical or mental health did not impair usual activity, past 30 days*	20.329 (10.939)	0.459 (0.175)	1.585 (0.606)	[0.009] [0.015]
# of days mental health good, past 30 days*	18.738 (11.445)	0.603 (0.184)	2.082 (0.64)	[0.001] [0.003]
Did not screen positive for depression, last two weeks	0.671 (0.470)	0.023 (0.0071)	0.078 (0.025)	[0.001] [0.003]
Standardized treatment effect		0.059 (0.011)	0.203 (0.039)	[<0.0001]

Finkelstein et al (2012): Health

TABLE X
POTENTIAL MECHANISMS FOR IMPROVED HEALTH (SURVEY DATA)

	Control mean (1)	ITT (2)	LATE (3)	<i>p</i> -values (4)
Panel A: Access to care				
Have usual place of clinic-based care	0.499 (0.500)	0.099 (0.0080)	0.339 (0.027)	<0.0001 <0.0001
Have personal doctor	0.490 (0.500)	0.081 (0.0077)	0.280 (0.026)	<0.0001 <0.0001
Got all needed medical care, last six months	0.684 (0.465)	0.069 (0.0063)	0.239 (0.022)	<0.0001 <0.0001
Got all needed drugs, last six months	0.765 (0.424)	0.056 (0.0055)	0.195 (0.019)	<0.0001 <0.0001
Didn't use ER for nonemergency, last six months	0.916 (0.278)	-0.0011 (0.0043)	-0.0037 (0.015)	[0.804] [0.804]
Standardized treatment effect		0.128 (0.0084)	0.440 (0.029)	<0.0001
Panel B: Quality of care				
Quality of care received last six months good/very good/excellent (conditional on any)	0.708 (0.455)	0.043 (0.0081)	0.142 (0.027)	<0.0001
Panel C: Happiness				
Very happy or pretty happy (vs. not too happy)	0.594 (0.491)	0.056 (0.0074)	0.191 (0.026)	<0.0001

Baicker et al (2013): Health

Table 2. Mean Values and Absolute Change in Clinical Measures and Health Outcomes with Medicaid Coverage.*

Variable	Mean Value in Control Group	Change with Medicaid Coverage (95% CI) †	P Value
Blood pressure			
Systolic (mm Hg)	119.3±16.9	-0.52 (-2.97 to 1.93)	0.68
Diastolic (mm Hg)	76.0±12.1	-0.81 (-2.65 to 1.04)	0.39
Elevated (%) ‡	16.3	-1.33 (-7.16 to 4.49)	0.65
Hypertension			
Diagnosis after lottery (%) § ¶	5.6	1.76 (-1.89 to 5.40)	0.34
Current use of medication for hypertension (%) § ¶	13.9	0.66 (-4.48 to 5.80)	0.80
Cholesterol**			
Total level (mg/dl)	204.1±34.0	2.20 (-3.44 to 7.84)	0.45
High total level (%)	14.1	-2.43 (-7.75 to 2.89)	0.37
HDL level (mg/dl)	47.6±13.1	0.83 (-1.31 to 2.98)	0.45
Low HDL level (%)	28.0	-2.82 (-10.28 to 4.64)	0.46
Hypercholesterolemia			
Diagnosis after lottery (%) § ¶	6.1	2.39 (-1.52 to 6.29)	0.23
Current use of medication for high cholesterol level (%) § ¶	8.5	3.80 (-0.75 to 8.35)	0.10
Glycated hemoglobin			
Level (%)	5.3±0.6	0.01 (-0.09 to 0.11)	0.82
Level ≥ 6.5% (%) † ‡	5.1	0.03 (-1.14 to 0.98)	0.61

Baicker et al (2013): Health

Table 3. Mean Values and Absolute Change in Health-Related Quality of Life and Happiness with Medicaid Coverage.*

Variable	Mean Value in Control Group	Change with Medicaid Coverage (95% CI) [†]	P Value
Health-related quality of life			
Health same or better vs. 1 yr earlier (%)	80.4	7.84 (1.45 to 14.23)	0.02
SF-8 subscale [‡]			
Mental-component score	44.4±11.4	1.95 (0.03 to 3.88)	0.05
Physical-component score	45.5±10.5	1.20 (-0.54 to 2.93)	0.18
No pain or very mild pain (%)	56.4	1.16 (-6.94 to 9.26)	0.78
Very happy or pretty happy (%)	74.9	1.18 (-5.85 to 8.21)	0.74

Baicker et al (2014): Employment

TABLE 1—2009 EARNINGS

	Control mean (1)	Intent-to- treat (2)	Local average treatment effect (3)	<i>p</i> -values (4)
Employment (any earnings)	0.5470	−0.0042 (0.0037)	−0.0156 (0.014)	0.266
Amount of earnings	6,513.02 (10,227.30)	−51.74 (76.80)	−194.93 (289.00)	0.500
Earnings above FPL	0.1314	−0.0032 (0.0026)	−0.0122 (0.0099)	0.219

Baicker et al (2014): Benefits

TABLE 2—2009 BENEFITS

	<i>Panel A. Any receipt of benefits</i>				<i>Panel B. Amount of benefits received</i>			
	Control mean (1)	Intent-to-treat (2)	Local average treatment effect (3)	<i>p</i> -values (4)	Control mean (5)	Intent-to-treat (6)	Local average treatment effect (7)	<i>p</i> -values (8)
Food stamps (SNAP)	0.599	0.025 (0.0038)	0.0950 (0.014)	<0.001	1,494.35 (1,893)	72.75 (15.75)	276.19 (58.85)	<0.001
TANF	0.031	0.0031 (0.0015)	0.0117 (0.0058)	0.042	111.36 (711)	2.62 (5.94)	9.89 (22.43)	0.659
SSI	0.050	-0.00024 (0.0017)	-0.0009 (0.0065)	0.888	30.63 (137.972)	0.25 (1.08)	0.93 (4.09)	0.821
SSDI	0.084	0.0017 (0.0014)	0.0066 (0.0054)	0.222	943.19 (3,401.323)	14.43 (17.33)	54.41 (65.31)	0.405

TL;DR:

- 1 Oregon randomized health insurance coverage
- 2 Finkelstein et al (2012) find large benefits across the board
- 3 Same sign as the IV & DD estimates!